**Section 6.2 – Relationship between slope and angle of elevation February 26, 2020**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Section 6.2**

1. **(a) *FIRST*** determine the ***slope (rise/run) in lowest terms*** for each triangle below.

**(b) *SECOND*** ***determine the tangent ratio of angle A*** (2nd TAN) to the nearest degree for each triangle below**.**

1. **c.**

25 cm

6 in

**A**

12 in

**A**

15 cm

 **Slope = rise = \_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_ Slope = rise = \_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_**

 **Run run**

**Slope as decimal = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Slope as a decimal = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Angle A (in degrees) = \_\_\_\_\_\_\_\_\_\_\_ Angle A (in degrees) = \_\_\_\_\_\_\_\_\_\_\_**

50 m

1. **d.**

**A**

5 m

30 m

**A**

15 m

 **Slope = rise = \_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_ Slope = rise = \_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_**

 **Run run**

**Slope as decimal = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Slope as a decimal = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Angle A (in degrees) = \_\_\_\_\_\_\_\_\_\_\_ Angle A (in degrees) = \_\_\_\_\_\_\_\_\_\_\_**

1. Determine the ***slope (reduced fraction)*** of each line. REMEMBER – use any two points on the line!
2. **c.**

 ****

**Slope = \_\_\_\_\_ = \_\_\_\_\_ Slope = \_\_\_\_\_ = \_\_\_\_\_**

1. **d.**

 ****

**Slope = \_\_\_\_\_ = \_\_\_\_\_ Slope = \_\_\_\_\_ = \_\_\_\_\_**

1. Determine the **tangent ratio** (in degrees) of each line in question #2 above.
2. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
3. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
4. The bottom of a ladder is 1.5 m from a house. The angle between the ladder and the ground is 60 degrees. How far up the house does the ladder reach? Round your answer to the nearest tenth of a meter. First, draw a diagram & include labels then solve for the unknown (X) below.
5. From a boat 120 away, the angle of elevation of the top of a lighthouse is 42 degrees. Determine the height of the top of the lighthouse from sea level. Express your answer to the nearest tenth of a meter. First, draw a diagram with labels and then solve for the unknown (X).
6. Determine the angle of elevation in degrees of a road with each grade (provided as a percentage below).

Example: 15% = 15 divided by 100 = .15

 Shift or 2nd TAN .15 = 8.53 degrees = 9 degrees

1. 6%
2. 25%
3. Indicate the relationship between the grade of a road and the angle of elevation. Provide an example.
4. In class, we identified items in a house that would have a zero slope and undefined slopes. What is the importance of both of these slopes to real life situations? Provide two examples.

1. Carpenters must follow guidelines when building stairs. The rule is that for every 250 mm of run there should be 200 mm rise. Chad is building a set of stairs. Each tread will have a run of 10 inches and a rise of 8 inches. Will his stairs meet the requirements? Explain
2. Describe a road with a 0 % grade. State some effects this would have on driving.

NOTE: Compared to a downward or upward slope of road.

**END OF SECTION 6.2**